U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave
Washington, DC 20591

October 18, 2021

Exemption No. 18594A
Regulatory Docket No. FAA-2018-0768

Mr. Michael Izquierdo
Beverly Hills Aerials, LLC
1619 S Burnside Ave
Los Angeles, CA 90019

Dear Mr. Izquierdo:

This letter is to inform you that the Federal Aviation Administration (FAA) has granted your petition to extend and amend Exemption No. 18594. This letter transmits the FAA's decision, explains the FAA's basis, and provides the conditions and limitations of the exemption, including the date the exemption ends, and lists the revised conditions and limitations.

The Basis for the FAA's Decision

By information submitted to the federal docket on July 19, 2021, you petitioned the FAA on behalf of Beverly Hills Aerials, LLC (Beverly Hills) for an extension of and an amendment to Exemption No. 18594. That exemption from §§ 61.23(a), 61.23(c), 61.101(e)(4), 61.101(e)(5), 61.113(a), 61.113(b), 61.315(a), 61.315(c)(2), 61.315(c)(3), 91.7(a), 91.109, 91.119(c), 91.121, 91.405(a), 91.407(a)(1), 91.409(a)(1), 91.409(a)(2), 91.417(a), and 91.417(b) of Title 14, Code of Federal Regulations (14 CFR) allows Beverly Hills to conduct unmanned aircraft system (UAS) operations, subject to conditions and limitations. The amendment you request would also authorize Beverly Hills to operate the Alta X UAS.

In your petition, you indicate that there has been no change in the conditions and reasons relative to public interest and safety that were the basis for granting the original exemption.

The FAA's Decision

The FAA has determined that good cause exists for not publishing a summary of the petition in the *Federal Register*. The FAA has determined that good cause exists because the requested extension of amendment to the exemption would not set a precedent and any delay in acting on this petition would be detrimental to Beverly Hills.

While the petitioner did not request relief from Section 91.403(b), the FAA has determined such relief is necessary as in the Overwatch Aero Grant of Exemption number 18596 (copy enclosed). This section provides that no person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in subpart E of Part 91 and other applicable regulations, including Part 43. To ensure a level of safety is equivalent to what would be

achieved by strict compliance with those regulations, the FAA, will require, as part of this exemption, that maintenance, preventive maintenance, rebuilding, and alterations be performed using the methods techniques and practices prescribed in the current manufacturers' maintenance manuals. This maintenance must be performed by qualified individuals who have been trained by the manufacturer in proper techniques and procedures for these UAS, as described in their applicable operating documents. All maintenance must be recorded in the aircraft records including a brief description of the work performed, date of completion and the name of the person performing the work. Based on the information provided by the petitioner and the petitioner's compliance with the conditions and limitations of this exemption, relief from the referenced portion of Section 91.403(b) would not adversely affect safety. Therefore, relief to Section 91.403(b) is granted.

The FAA has determined that the justification for the issuance of Exemption No. 18594 remains valid with respect to this exemption and is in the public interest. Therefore, under the authority provided by 49 U.S.C. §§ 106(f), 40113, 44701, and 44807, which the FAA Administrator has delegated to me, I hereby grant Beverly Hills Aerials, LLC an exemption from 14 CFR §§ 61.23(a), 61.23(c), 61.101(e)(4), 61.101(e)(5), 61.113(a), 61.113(b), 61.315(a), 61.315(c)(2), 61.315(c)(3), 91.7(a), 91.109, 91.119(c), 91.121, 91.403(b), 91.405(a), 91.407(a)(1), 91.409(a)(1), 91.409(a)(2), 91.417(a), and 91.417(b) to the extent necessary to allow Beverly Hills to conduct UAS operations, subject to the following conditions and limitations.

Conditions and Limitations

The conditions and limitations within Grant of Exemption No. 18594 have been superseded, and are amended as follows. In this grant of exemption, Beverly Hills Aerials, LLC, is hereafter referred to as "the Operator" or "Exemption Holder."

A copy of the 49 USC 44807 Certificate of Waiver or Authorization (COA) is enclosed with this exemption, and must be accessible during all UAS operations that occur under this exemption and made available to the Administrator upon request.

1. Operations authorized by this exemption are limited to the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X conducted by Beverly Hills and are limited to the operations described in the petition for exemption and the operating documents. Proposed operations of any other unmanned aircraft system (UAS) requires a new petition or a petition to amend this decision. The aircraft's maximum take-off weights (MTOW) for each of these aircraft must not exceed the following:
    - The MFD 5000 has an empty weight of 23 lbs. and a MTOW of 75 lbs.
    - The DJI Heavy Lift has an empty weight of 37.5 lbs. and a MTOW of 99.2 lbs.
    - The BFD GD-40 has an empty weight of 36.5 lbs. and a MTOW of 88.2 lbs.
    - The Freely Systems Alta X has an empty weight of 22.9 lbs. and a MTOW of 76.9 lbs.

2. The Operator must comply with all applicable manuals and procedures provided in support of the requested relief. Where discrepancies exist between the conditions and limitations of this exemption, the associated Certificate of Waiver or Authorization

(COA), and other operating documents, the most restrictive terms apply.

3. The Operator must petition for an amendment to this decision if the Operator makes any update or revision to the operating documents, aircraft systems, operating parameters, or other supporting documents that would affect the basis upon which the FAA granted this exemption. The Operator must submit all other updates by contacting the FAA's Flight Standards Service, General Aviation and Commercial Division (AFS-800), 800 Independence Avenue SW, Washington, DC 20591. Telephone number: 202-267-1100, Email: 9-AFS-800-Correspondence@faa.gov. The Operator must track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request.

4. All operations that occur pursuant to this exemption must be conducted in accordance with an Air Traffic Organization (ATO) issued COA. The Exemption Holder must apply for a new or amended COA if it intends to conduct operations that the terms of the COA do not permit. If a conflict between the COA and this condition exists, the more restrictive provision will apply. In the absence of any express altitude restriction in a COA or any other document the FAA provides that applies to operations under this exemption, the maximum altitude shall be 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The unmanned aircraft (UA) must be operated within visual line of sight (VLOS) of the pilot in command (PIC) at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal Government.

6. All operations must utilize a visual observer (VO). The UA must be operated within the VLOS of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption does not relieve petitioner from complying with 14 CFR Part 375. If operations under this exemption involve the use of foreign civil aircraft, the Operator must obtain a Foreign Aircraft Permit pursuant to § 375.41 prior to conducting any commercial air operations under the authority of this exemption. Application instructions are specified in § 375.43.

8. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. In all situations, the PIC is responsible for the safety of the operation. The PIC is also responsible for meeting all applicable conditions and limitations as prescribed in this exemption and ATO-issued COA, when conducting operations, and operating in accordance with the operating documents.

9. PIC certification: Under this exemption, a PIC must hold at least a Private, Sport, or

Recreational Pilot Certificate with a current FAA medical certificate or current U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also hold a Part 107 certificate and be qualified in accordance with § 107.65, and the Operator and original equipment manufacturer (OEM) training programs and manuals to operate the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X safely and in a manner consistent with how it will be operated under this exemption.

10. To serve as PIC of an operation conducted under this exemption, the PIC must be qualified, as required by the Operator's training program that includes a minimum of 10 flights and two hours of flight time in the UAS to be conducted under this exemption. Moreover, each PIC must immediately inform the petitioner if he or she obtains any deviation or exemption from an FAA regulation that might affect his or her compliance with the PIC requirements under this exemption.

11. The Operator must ensure that the PIC can satisfactorily make evasive and emergency maneuvers and maintain appropriate distances from persons, vessels, vehicles and structures before operating non-training, proficiency, or experience-building flights under this exemption.

12. Pursuant at § 91.103, prior to each flight, the PIC must conduct a pre-flight inspection, become familiar with all information concerning that flight, pursuant to § 91.103, and determine the UAS is in a condition for safe operation. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. The UA may not operate if the inspection reveals a condition that affects the safe operation of the UAS, until the PIC determines the UAS is in a condition for safe flight.

13. The PIC is prohibited from beginning a flight unless, considering wind and forecast weather conditions, there is enough available fuel for the UA to conduct the intended operation with sufficient reserves such that the PIC can land the UA without posing an undue risk to aircraft or people and property on the ground.

14. All crewmembers, including PIC and ground personnel used for takeoff and landing, must maintain two-way voice communications with each other during operations. If unable to maintain two-way voice communication, the PIC will land the UA in a safe location as soon as the PIC determines it is practicable to do so. For the purpose of compliance with all conditions and limitations in this exemption, the term "crew member" includes the PIC, the person manipulating the controls, the VOs, and any other personnel required for the safety of the flight operation. No required crewmember may engage in electronic messaging, texting, or other communication using any personal electronic device during flight operations which could distract any crewmember from the performance of his or her duties.

15. Each UA must be controlled by only a single control station and one PIC at a time. A PIC may not operate multiple UA at the same time.

16. All operations must be conducted under visual meteorological conditions (VMC).

    a. The PIC must obtain and use real-time weather information as described in the operating documents.

    b. Each operation may only occur when weather in the area of the operation is reported and forecast to be at least 1,000-foot ceiling and 3 statute mile visibility within 1 hour before and 1 hour after takeoff and landing.

    c. The UA must remain 500 feet below and more than 2,000 feet horizontally from a cloud.

    d. The PIC must land the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X as soon as possible if the PIC is unable to comply with the required visibility and cloud clearance requirements.

17. Operations under this exemption may not be conducted during night, as defined in § 1.1.

18. The distance between the ground control station and the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X must not exceed radio line of sight through the entirety of the proposed flight path during all operations. Operations using multiple ground control stations and/or command and control link relays along the flight path for handoff between ground control stations are prohibited.

19. Any maintenance or alterations that affect the operation of the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X or its flight characteristics, such as replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights must be conducted within VLOS by a PIC with the assistance of a VO as defined above, and other personnel required to conduct the functional flight test (such as a mechanic or technician) and must remain at least 500 feet from all other people. The functional test flight must be conducted in such a manner to not pose an undue hazard to persons and property. The petitioner must permit the Administrator to observe functional test flights upon the request.

20. The Operator must follow the manufacturer's operating limitations, maintenance, service bulletins, overhaul, replacement, inspection, and life limit requirements for the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X and its components. Each UAS operated under this exemption must comply with all original equipment manufacturer (OEM) safety bulletin. The Operator must follow the Original Equipment Manufacturers (OEM) operating limitations, maintenance, service bulletins, overhaul, replacement, inspection, and life limit requirements for the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X and its components. Each UAS operated under this exemption must comply with all OEM safety bulletins. Maintenance must be performed by qualified individuals who have been trained by the manufacturer in proper techniques and procedures for these UAS and all maintenance must be recorded in the aircraft records including a brief description of the work performed, date of completion and the name of the person performing the work.

21. The Operations Manuals, Aircraft Maintenance and Service Manuals, Federal Communications Commission (FCC) Grant of Equipment Authorization, and a copy of this exemption must be accessible to the PIC at the control station during all operations that occur under this exemption, and made available to the Administrator upon request.

22. All flight operations must be conducted at least 500 feet from all persons who are not directly participating in the operation, and from vessels, vehicles, and structures, unless when operating:

    a. Over or near people directly participating in the operation of the UAS. People directly participating in the operation of the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X include the PIC, crewmembers, and other consenting personnel whose presence is necessary to ensure the safety of the operation.

    b. Near nonparticipating persons. The MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X may be operated closer than 500 feet to a person who is not directly participating in the operation only when barriers or structures are present. Such barriers must sufficiently protect the person from the aircraft and from debris or hazardous materials from the aircraft. Under these conditions, the petitioner must ensure the person remains under such protection for the duration of the operation. If a situation arises in which the person leaves such protection and is within 500 feet of the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X, flight operations must cease immediately in a manner that does not cause undue hazard to any person.

    c. Near vessels, vehicles and structures. Prior to conducting operations within 500 feet of any vessels, vehicles, or structures, the petitioner must obtain permission to proceed within 500 feet from a person with authority over such vessels, vehicles or structures. The PIC must first assess the risk of operating closer to those objects and determine that it does not present an undue hazard.

23. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Chart Supplement or, for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. Operations under this exemption may not occur from any moving vehicle or aircraft.

26. Frequency spectrum approval is independent of this grant of exemption and the FAA COA process. The FAA encourages the Operator to remain aware of all relevant

requirements of the Federal Communications Commission (FCC), especially those concerning frequency spectrum use. Please see the appropriate provisions of title 47, Code of Federal Regulations.

27. The PIC may not begin or continue a flight if any global positioning system (GPS) outage, signal fault, integrity issue, Notice to Airmen (NOTAM) in effect for any part of the planned operational area, or any other condition affects the functionality or validity of the GPS signal.

28. The PIC must abort the flight operation if circumstances or emergencies arise that could degrade the safety of persons or property. In such cases, the PIC's termination of flight operations must not cause undue hazard to persons or property.

29. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

30. All training operations must be conducted during dedicated training sessions. Training to conduct operations with the MFD 5000, DJI Heavy Lift, BFD GD-40, and Alta X must not occur adjacent to neighborhoods, or near or over people.

31. This exemption is not valid for operations outside of the United States.

32. Unless otherwise specified in this exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, Parts 5, 47, 61, and 91.

Failure to comply with any of the above conditions and limitations may result in the immediate suspension or rescission of this exemption.

The Effect of the FAA's Decision

The FAA's decision amends Exemption No. 18594 to 18594A and extends the termination date to September 30, 2023, unless sooner superseded or rescinded. This amendment adds the Alta X as an authorized UAS to Exemption No. 18594.

To request an extension or amendment to this exemption, please submit your request by using the Regulatory Docket No. FAA-2018-0768 (*http://www.regulations.gov*). In addition, you should submit your request for extension or amendment no later than 120 days prior to the expiration listed above, or the date you need the amendment, respectively.

Any extension or amendment request must meet the requirements of 14 CFR § 11.81.

Sincerely,
/s/
Robert C. Carty
Acting Executive Director, Flight Standards Service

Enclosures

U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave
Washington, DC 20591

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In the matter of the petition of

OVERWATCH AERO, LLC

For an exemption from part 21 Subpart H and §§ 43.7; 45.11; 45.29; 61.113(a)(b); 91.9(b)(2) and (c); 91.103(b)(2); 91.105; 91.109; 91.151(a); 91.203(a) and (b); 91.215; 91.403; 91.405(a); 91.407(a)(1); 91.409(a)(1) and (a)(2); 91.417(a) and (b) of Title 14, Code of Federal Regulations

Exemption No 18596
Regulatory Docket No. FAA-2018-0857

GRANT OF EXEMPTION

By letter dated September 7, 2018, as supplemented by certain additional information submitted on December 6, 2018, March 11, 2019, March 21, 2019, June 3, 2019, February 19, 2020, March 31, 2020, June 17, 2020 and July 1, 2020; Mr. Chase Pietenpol, Chief Operations Officer, Overwatch Aero, LLC (Overwatch), 1248 Alamo Pintado Road, Solvang, CA 93463, petitioned the Federal Aviation Administration (FAA) for an exemption from Title 14, Code of Federal Regulations (14 CFR) part 21, Subpart H; §§ 43.7; 45.11; 45.29; 61.113(a)(b); 91.9(b)(2) and (c); 91.103(b)(2); 91.105; 91.109; 91.151(a); 91.203(a) and (b); 91.215; 91.403; 91.405(a); 91.407(a)(1); 91.409(a)(1) and (a)(2); 91.417(a) and (b). This exemption allows Overwatch to operate the Harris Latitude Hybrid Quadrotor-60 (HQ-60) and the Harris Latitude Hybrid Quadrotor-90 (HQ-90) unmanned aircraft systems (UAS), weighing 95 and 121 pounds (lbs.) respectively, for the purpose of conducting (a) training, testing, and integration operations, and (b) operational missions (i.e., not training, testing, or integration operations) during the day and at night.

The petitioner requests relief from the following regulations:

Part 21 prescribes, in pertinent parts, the procedural requirements for issuing and changing design approvals, production approvals, airworthiness certificates, and airworthiness approvals.

Section 43.7 prescribes, in pertinent part, certain requirements for persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration.

Section 43.11 prescribes, in pertinent part, certain requirements regarding the content, form, and disposition of records for inspections conducted under parts 91 and 125 and §§ 135.411(a)(1) and 135.419.

Section 45.11 prescribes, in pertinent part, that -

(a) Aircraft. A manufacturer of aircraft covered under § 21.182 of this chapter must mark each aircraft by attaching a fireproof identification plate that—
  (1) Includes the information specified in § 45.13 using an approved method of fireproof marking;
  (2) Must be secured in such a manner that it will not likely be defaced or removed during normal service, or lost or destroyed in an accident; and
  (3) Except as provided in paragraphs (d) through (h) of this section, must be secured to the aircraft fuselage exterior so that it is legible to a person on the ground, and must be either adjacent to and aft of the rear-most entrance door or on the fuselage surface near the tail surfaces.

(b) Aircraft engines. A manufacturer of an aircraft engine produced under a type certificate or production certificate must mark each engine by attaching a fireproof identification plate. Such plate—
  (1) Must include the information specified in § 45.13 using an approved method of fireproof marking;
  (2) Must be affixed to the engine at an accessible location; and
  (3) Must be secured in such a manner that it will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Propellers and propeller blades and hubs. Each person who produces a propeller, propeller blade, or propeller hub under a type certificate or production certificate must mark each product or part. Except for a fixed-pitch wooden propeller, the marking must be accomplished using an approved fireproof method. The marking must—
  (1) Be placed on a non-critical surface;
  (2) Contain the information specified in § 45.13;
  (3) Not likely be defaced or removed during normal service; and
  (4) Not likely be lost or destroyed in an accident.

Section 45.29 prescribes, in pertinent part, that marks at least 3 inches high may be displayed on an aircraft for which the FAA has issued an experimental certificate under § 21.191 (d), § 21.191 (g), or § 21.191 (i) of this chapter to operate as an exhibition aircraft, an amateur-built aircraft, or a light-sport aircraft when the maximum cruising speed of the aircraft does not exceed 180 knots calibrated airspeed (CAS).

Section 61.113(a) and (b) prescribes, in pertinent part, that -

(a) Except as provided in paragraphs (b) through (h) of this section, no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

(b) A private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if:

(1) The flight is only incidental to that business or employment; and

(2) The aircraft does not carry passengers or property for compensation or hire.

Section 91.9(b) (2) and (c) prescribes, in pertinent part, that -

(b) No person may operate a U.S.-registered civil aircraft—

(1) For which an Airplane or Rotorcraft Flight Manual is required by § 21.5 of this chapter unless there is available in the aircraft a current, approved Airplane or Rotorcraft Flight Manual or the manual provided for in § 121.141(b); and

(2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

(c) No person may operate a U.S.-registered civil aircraft unless that aircraft is identified in accordance with part 45 of this chapter.

Section 91.103 prescribes, in pertinent part, that each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include—

(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:

(1) For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and

(2) For civil aircraft other than those specified in paragraph (b)(1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

Section 91.105 prescribes that –

(a) During takeoff and landing, and while enroute, each required flight crewmember shall—

(1) Be at the crewmember station unless the absence is necessary to perform duties in connection with the operation of the aircraft or in connection with physiological needs; and

(2) Keep the safety belt fastened while at the crewmember station.

(b) Each required flight crewmember of a U.S.-registered civil aircraft shall, during takeoff and landing, keep his or her shoulder harness fastened while at his or her assigned duty station. This paragraph does not apply if—

(1) The seat at the crewmember's station is not equipped with a shoulder harness; or

(2) The crewmember would be unable to perform required duties with the shoulder harness fastened.

Section 91.109 prescribes that –

(a) No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. However, instrument flight instruction may be given in an airplane that is equipped with a single, functioning throw over control wheel that controls the elevator and ailerons, in place of fixed, dual controls, when—

(1) The instructor has determined that the flight can be conducted safely; and

(2) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

(b) An airplane equipped with a single, functioning throw over control wheel that controls the elevator and ailerons, in place of fixed, dual controls may be used for flight instruction to conduct a flight review required by § 61.56 of this chapter, or to obtain recent flight experience or an instrument proficiency check required by § 61.57 when—

(1) The airplane is equipped with operable rudder pedals at both pilot stations;

(2) The pilot manipulating the controls is qualified to serve and serves as pilot in command during the entire flight;

(3) The instructor is current and qualified to serve as pilot in command of the airplane, meets the requirements of § 61.195(b), and has logged at least 25 hours of pilot-in-command flight time in the make and model of airplane; and

(4) The pilot in command and the instructor have determined the flight can be conducted safely.

(c) No person may operate a civil aircraft in simulated instrument flight unless—

(1) The other control seat is occupied by a safety pilot who possesses at least a private pilot certificate with category and class ratings appropriate to the aircraft being flown.

(2) The safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in the aircraft adequately supplements the vision of the safety pilot; and

(3) Except in the case of lighter-than-air aircraft, that aircraft is equipped with fully functioning dual controls. However, simulated instrument flight may be conducted in a single-engine airplane, equipped with a single, functioning, throw over control wheel, in place of fixed, dual controls of the elevator and ailerons, when—

(i) The safety pilot has determined that the flight can be conducted safely; and

(ii) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

(d) No person may operate a civil aircraft that is being used for a flight test for an airline transport pilot certificate or a class or type rating on that certificate, or for a part 121 proficiency flight test, unless the pilot seated at the controls, other than the pilot being checked, is fully qualified to act as pilot in command of the aircraft.

Section 91.151(a) prescribes that –

(a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed—

(1) During the day, to fly after that for at least 30 minutes; or

(2) At night, to fly after that for at least 45 minutes.

Section 91.203(a) and (b) prescribe that –

(a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:

(1) An appropriate and current airworthiness certificate. Each U.S. airworthiness certificate used to comply with this subparagraph (except a special flight permit, a copy of the applicable operations specifications issued under § 21.197(c) of this chapter, appropriate sections of the air carrier manual required by parts 121 and 135 of this chapter containing that portion of the operations specifications issued under § 21.197(c), or an authorization under § 91.611) must have on it the registration number assigned to the aircraft under part 47 of this chapter. However, the airworthiness certificate need not have on it an assigned special identification number before 10 days after that number is first affixed to the aircraft. A revised airworthiness certificate having on it an assigned special identification number, that has been affixed to an aircraft, may only be obtained upon application to the responsible Flight Standards office.

(2) An effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft registration Application as provided for in § 47.31(c), a Certificate of

Aircraft registration as provided in part 48, or a registration certification issued under the laws of a foreign country.

(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

Section 91.215 prescribes that –

(a) All airspace: U.S.-registered civil aircraft. For operations not conducted under part 121 or 135 of this chapter, ATC transponder equipment installed must meet the performance and environmental requirements of any class of TSO-C74b (Mode A) or any class of TSO-C74c (Mode A with altitude reporting capability) as appropriate, or the appropriate class of TSO-C112 (Mode S).

(b) All airspace. Unless otherwise authorized or directed by ATC, no person may operate an aircraft in the airspace described in paragraphs (b)(1) through (b)(5) of this section, unless that aircraft is equipped with an operable coded radar beacon transponder having either Mode 3/A 4096 code capability, replying to Mode 3/A interrogations with the code specified by ATC, or a Mode S capability, replying to Mode 3/A interrogations with the code specified by ATC and intermode and Mode S interrogations in accordance with the applicable provisions specified in TSO C-112, and that aircraft is equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments. This requirement applies—

(1) All aircraft. In Class A, Class B, and Class C airspace areas;

(2) All aircraft. In all airspace within 30 nautical miles of an airport listed in appendix D, section 1 of this part from the surface upward to 10,000 feet MSL;

(3) Notwithstanding paragraph (b)(2) of this section, any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon or glider may conduct operations in the airspace within 30 nautical miles of an airport listed in appendix D, section 1 of this part provided such operations are conducted—

(i) Outside any Class A, Class B, or Class C airspace area; and

(ii) Below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport or 10,000 feet MSL, whichever is lower; and

(4) All aircraft in all airspace above the ceiling and within the lateral boundaries of a Class B or Class C airspace area designated for an airport upward to 10,000 feet MSL; and

(5) All aircraft except any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon, or glider—

(i) In all airspace of the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL, excluding the airspace at and below 2,500 feet above the surface; and

(ii) In the airspace from the surface to 10,000 feet mean sea level (MSL) within a 10-nautical-mile radius of any airport listed in appendix D, section 2 of this part, excluding the airspace below 1,200 feet outside of the lateral boundaries of the surface area of the airspace designated for that airport.

(c) Transponder-on operation. While in the airspace as specified in paragraph (b) of this section or in all controlled airspace, each person operating an aircraft equipped with an operable ATC transponder maintained in accordance with § 91.413 of this part shall operate the transponder, including Mode C equipment if installed, and shall reply on the appropriate code or as assigned by ATC.

(d) ATC authorized deviations. Requests for ATC authorized deviations must be made to the ATC facility having jurisdiction over the concerned airspace within the time periods specified as follows:

(1) For operation of an aircraft with an operating transponder but without operating automatic pressure altitude reporting equipment having a Mode C capability, the request may be made at any time.

(2) For operation of an aircraft with an inoperative transponder to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made or both, the request may be made at any time.

(3) For operation of an aircraft that is not equipped with a transponder, the request must be made at least one hour before the proposed operation.

Section 91.403 prescribes, in pertinent part, that no person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable regulations, including part 43 of this chapter.

Section 91.405(a) prescribes that each owner or operator of an aircraft — shall have that aircraft inspected as prescribed in subpart E of this part and shall, between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter.

Section 91.407(a)(1) prescribes that –

(a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless—

(1) It has been approved for return to service by a person authorized under §43.7 of this chapter.

Section 91.409(a)(1) and (2) prescribes that –

(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had—
(1) An annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by § 43.7 of this chapter; or
(2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

No inspection performed under paragraph (b) of this section may be substituted for any inspection required by this paragraph unless it is performed by a person authorized to perform annual inspections and is entered as an "annual" inspection in the required maintenance records.

Section 91.417(a) and (b) prescribes that –
(a) Except for work performed in accordance with §§ 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:
(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include—
(i) A description (or reference to data acceptable to the Administrator) of the work performed; and
(ii) The date of completion of the work performed; and
(iii) The signature, and certificate number of the person approving the aircraft for return to service.
(2) Records containing the following information:
(i) The total time in service of the airframe, each engine, each propeller, and each rotor.
(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.
(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.
(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.
(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

The petitioner supports its request with the following information:

The petition for exemption describing the proposed operation and the regulations from which the petitioner seeks exemption is posted to the docket. To view the petition, visit http://www.regulations.gov, enter the regulatory docket number found on the first page of this document into the search box and click "Search," then click on the "Open Docket Folder" link next to a result associated with the docket number.

In addition to the information provided in the petition for exemption, the petitioner provided the FAA with the following documents and information, some of which contain proprietary information. These documents and information are considered part of the petition for exemption:

1. Video of operation at 4,000 ft. AGL
2. Video of Aircraft Spotting
3. Latitude Data Sheets
4. Overwatch Aero Training Plan
5. Overwatch Aero Specific Operations Risk Analysis Worksheet
6. Overwatch Aero Proposed Airspace
7. Hybrid Quadrotor (HQ) concept support document
8. HQ-90 Operating Guide-PN 26677
9. FVR Maintenance Guide PN 26543 – Revision A
10. Latitude HQ Supporting Documentation
11. NWCG Standards for Fire Unmanned Aircraft Systems Operations
12. Video of HQ-90 flight in restricted airspace at 4000 ft. AGL.
13. Interagency Aviation Information Bulletin- IA IB 19-01
14. Latitude HQ-60 N610BN Ops Limits
15. Overwatch Aero-Aircraft Spotting
16. Overwatch Aero response to requests for information dated: March 10, 2019; September 18, 2019; May 13, 2019; February 19, 2020 ; June 17, 2020.

17. The test report and data sheet for the uAvionix Ping 200SR

The petition and the documents described above are hereinafter referred to as the operating documents.

The petitioner requests the FAA grant this exemption to conduct several types of operations:

Training/Test/Integration Flights: NATIONAL AIRSPACE: The petitioner proposes that these operations would be conducted exclusively under visual line of sight (VLOS) of the pilot or a visual observer (VO) at designated sites during the day. The petitioner would apply for certificates of authorization (COAs) via the COA online application system (CAPS) application and receive approval before flying in the National Airspace (NAS). Prior to launch, Overwatch would ensure that the proper Notice to Airmen/drone Notice to Airmen (NOTAM's/DROTAM) are active, and would communicate with the controlling authority via Air band very high frequency (VHF) radio (primary), phone (secondary) or internet (email or voice over internet protocol (VoIP) call; alternate). In addition to being in the VLOS of the pilot or VO Overwatch would use the onboard Electro-Optical/Infra-Red (EO/IR) gimbal to perform sweeps of the airspace and identify any air traffic in the training area. Overwatch believes it would satisfy § 91.113 by VLOS of the pilot or the VO, along with Overwatch's situational awareness tool (which amounts to electronic eye sweeps of the airspace). These airspaces were selected for: 1. Low air traffic volume 2; Visual line of sight properties (valley surrounded by mountains that force manned aviation to fly above 5,000 feet AGL.); 3. Proximity to terrain; and, 4. Terrain characteristics that help funnel traffic for easier observation.

Training/Test/Integration Flights: RESTRICTED AIRSPACE: The petitioner proposes that such operations would be handled in accordance with the controlling agency's[1] procedures.

Operational Missions (i.e. missions other than training/test/integration flights): TEMPORARILY RESTRICTED AIRSPACE: The petitioner wishes to operate its UAS primarily within airspace subject to a Temporary Flight Restriction (TFR). Within the TFR, VLOS operations would be the norm, and beyond visual line of sight (BVLOS) operations would be kept to a minimum. Operations would occur during the day or night. Overwatch proposes to operate the UAS in a pre-coordinated section of the TFR and well clear of any manned traffic. Overwatch pilots in command (PIC) would ensure proper procedures at all times and that the unmanned aircraft's (UA) geo-fence accurately represents the TFR. Overwatch's procedures conform to the Interagency Fire Unmanned Aircraft Systems

[1] The FAA notes that Title 14 CFR § 73.15 explains that in Restricted Areas using agencies are the agency, organization, or military command whose activity within a restricted area necessitated the area being so designated. 14 CFR § 73.17 defines controlling agency as "the FAA facility that may authorize transit through or flight within a restricted area in accordance with a joint-use letter issued under 14 CFR § 73.15." All operations within the restricted areas must be in accordance with the purpose for which it was designated.

Operations Guide and National Wildfire Coordinating Group (NWCG) Standards for Airspace Coordination. The UAS are equipped with navigation lights, strobes and an automatic dependent surveillance-broadcast (ADS-B) In and Out transponders. All missions would be executed with fully mission capable situational awareness tools. For VLOS operations, Overwatch suggests § 91.113(b) is met by the PIC and the VO. For BVLOS, Overwatch suggests § 91.113(b) is met by procedural control and Overwatch situational awareness tools. The petitioner would seek a COA amendment through the Special Governmental Interest (SGI) process prior to conducting all UAS operational missions. Should the UAS have an in-flight emergency during a mission or flight, Overwatch personnel would work with the controlling authority to de-conflict airspace for the return to base or ditching of the airframe. Emergencies would be handled in accordance with proper documented procedures and best practices. At no time would the survivability of the aircraft supersede the safety of human life. In such instances, § 91.113(c) is met in the same way as in manned aviation, i.e., "aircraft in distress" procedure.

Operational Missions (i.e. missions other than training/test/integration flights): NATIONAL AIRSPACE: For any operational mission conducted outside of restricted airspace, i.e., outside of the TFR, the petitioner requests to only operate VLOS during the day. Overwatch suggests § 91.113 would be met by the VLOS of the PIC and, as a secondary measure, through Overwatch situational awareness tool and sensor scans.

Discussion of Public Comments:

A summary of the petition was published in the Federal Register on November 29, 2018, (83 FR 61400). Three comments were received. The Commercial Drone Alliance encouraged the granting of the petition in furtherance of innovation and permitting expanded operations of UAS. An individual commenter opposed the petition, stating that drones have not previously been used to help first responders in this country. The same commenter mentioned privacy concerns in the operation of UAS by first responders. The commenter did not provide any further details about her privacy concerns.

A third commenter, also an individual, expressed technical concerns. He pointed to what he considered to be conflicting information in the petition concerning the UAS's behavior resulting from lost link. In response to these comments, Overwatch subsequently provided additional information outlining the various options for safely dealing with a lost link. They further explained which option they would use in potential scenarios. The operational procedures and technical capabilities of the UAS indicate that in the event of a lost link the UAS would avoid people in the air and on the ground. Thus, the FAA finds the proposed procedures would not adversely affect safety.

The third commenter also wanted more clarity on how Overwatch plans to remain well clear of manned aircraft in automated route scenarios and in BVLOS operations. In response to these comments, Overwatch proposed to use a combination of technologies, operating

procedures, and restricted/procedural airspace for addressing these concerns including: ADS-B and Long Wave Infrared (LWIR). The FAA employed a risk-based approach, assessed each potential hazard, and considered whether the proposed mitigations are appropriate and sufficient to achieve an equivalent level of safety. The FAA determined that the operations could be conducted under equivalent levels of safety. The determination is based on the fact that the operations would occur over a predefined geographic area (limited in scope and size), would be of limited duration, would be conducted by UAS that are significantly smaller than manned aircraft, and would carry far less fuel. This determination did not contemplate the role of ADS-B given the Agency's policy position that UAS not use ADS-B Out for parts 91 and 107 operations.[2]

The FAA's analysis is as follows:

The HQ-60 and HQ-90 do not currently have airworthiness certificates and the petitioner seeks to use the UAS for operations within and BVLOS for search and rescue and fire mapping in support of first responders and for training their crew to complete such missions. The petitioner cites Public Law 112-95 § 333, which has been superseded by 49 United States Code (U.S.C.) 44807, in its petition for exemption. Pursuant to 49 U.S.C 44807, the petitioner asks the FAA to exempt the applicability of certain requirements codified at 14 CFR parts 61 and 91, based on the petitioner's contention that various risk mitigation measures, combined with the capabilities of the HQ-60 and HQ-90, will achieve a level of safety equivalent to the level that compliance with the regulations would achieve. The petitioner also contends that granting the petition is in the public interest.

Title 49 U.S.C. 44807 provides the Secretary of Transportation (hereafter Secretary) with authority to determine whether a certificate of waiver, certificate or authorization, or a certificate under § 44703 or § 44704, is required for the operation of certain UAS. Section 44807(b) instructs the Secretary to base this determination on which types of UAS do not create a hazard to users of the NAS or the public. In making this determination, the Secretary must consider the size, weight, speed, operational capability of the UAS, and other aspects of the proposed operation. In accordance with the statutory criteria provided in 49 U.S.C. 44807, and in consideration of the size, weight, speed, and operational capability, proximity to airports and populated areas, and specific operations, the Secretary has determined this aircraft does not create a hazard to users of the NAS or the public.

This exemption grants relief from certain requirements codified in 14 CFR parts 61, and 91, as described below. Furthermore, the FAA finds that relief from parts 21 and 27, and any associated noise certification and testing requirements of part 36, is not necessary.

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[2] *Remote Identification of Unmanned Aircraft Systems, Notice of Proposed Rulemaking*, 84 Fed. Reg. 72438, 72441 (December 31, 2019).

The FAA has organized its analysis into four sections: (1) the UAS, (2) the pilot in command (PIC), (3) the UAS operating parameters, and (4) the public interest.

The UAS

The HQ-60 and HQ-90 are both hybrid quadrotor vertical takeoff and landing (VTOL) UA. The majority of their structures are made of a carbon fiber composite construction. They use an electric quad-rotor system for launch and recovery. The quadrotor system lifts the plane vertically and the pusher motor then propels the aircraft forward.

The HQ-60 has a 150 inch wingspan. Its empty weight is 65 lbs. and maximum takeoff weight (MTOW) is 104 lbs. Its maximum endurance is 15 hours and cruise speed is 40 knots (kts.). Its maximum speed is 65 kts. The HQ-90 has a 188 inch wingspan. Its empty weight is 79 lbs. and MTOW is 104 lbs. Its maximum endurance is 17 hours and cruise speed is 40 kts. Its maximum speed is 65 kts.

Both UAS are equipped with the piccolo autopilot and include a global positioning system (GPS) antenna and a pitot-static probe for navigation. The autopilot communicates with the ground control station (GCS) through a 900 MHz or a 2.4 GHz connection. Both UAS are also equipped with a uAvionix Ping 200SR Extended Squitter (ADS-B) Out; ForeFlight Connect, which is a platform that enables portable and installed avionics to connect with ForeFlight Mobile and deliver capabilities like two-way flight plan transfer, ADS-B In, traffic collision avoidance system (TCAS), weather and traffic, backup attitude, and GPS position; navigation lights; anti-collision lights; and a high visibility paint scheme.

The petitioner seeks to operate the HQ-60 and HQ-90 aircraft, which do not have the appropriate airworthiness certificate specified in § 91.7, in the following types of operations: (a) training, testing, and integration operations within VLOS (b) operational missions involving search and rescue and fire mapping in support of first responders during the day and at night within a § 91.137 TFR both within VLOS and BVLOS, and (c) operational missions outside the TFR.

Section 91.7(a) provides, in pertinent part, that no person may operate a civil aircraft unless it is in an airworthy condition. Overwatch did not request relief from this regulation, however, the FAA determined relief is necessary because the HQ-60 and HQ-90 do not currently have airworthiness certificates.

The petitioner contends that the HQ-60 and HQ-90 aircraft have the design characteristics to safely operate in the geographic areas specified in the petition and that the operational limitations and conditions provide for a level of safety at least equivalent to manned aircraft operations conducting the same operations under the current regulatory structure. The FAA construes this contention as a request for relief from § 91.7(a), which is necessary for the operations the petitioner proposes to conduct. Based on the information reviewed by FAA in analyzing the proposed operations and the Secretary's determination under 49 U.S.C. 44807,

the FAA has determined that, subject to the conditions and limitations provided in this exemption, there would be no adverse effect on safety by operating the HQ-60 and HQ-90 without an airworthiness certificate. Thus, relief from the requirements of 14 CFR § 91.7(a) is granted to Overwatch.

The petitioner requested relief from §§ 43.7 and 91.403. Section 43.7 specifies those persons who are authorized to *approve* aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration. Section 91.403 provides that no person may *perform* maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in subpart E of part 91 and other applicable regulations, including part 43.

Because the HQ-60 and HQ-90 do not have an airworthiness certificate or meet any other part 43 applicability requirement prescribed in § 43.1, part 43 does not apply; as such, relief is not necessary.

Although Overwatch's petition referenced only § 91.403 without referring to paragraph (b) of the section, the actual relief requested is from that paragraph only. The petition stated: "Section 91.403 prescribes, *in pertinent part*, that no person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable regulations, including part 43 of this chapter." [Emphasis added.]. Therefore, the FAA's analysis here is directed only to § 91.403(b) and not to the entire section or any other parts of subpart E that would otherwise be applicable.

As to Overwatch's requested relief, because part 43 does not apply to the HQ-60 and HQ-90 aircraft, the proscriptions in § 43.3 limiting who may perform maintenance and approve an aircraft for return to service following that maintenance do not apply; as such, relief from § 43.3 is not necessary. However, in accord with the applicability requirements for subpart E found in § 91.401, § 91.403(b) does apply to the HQ-60 and HQ-90 aircraft.

The FAA has determined that Overwatch would need an exemption from § 91.403(b) for the regulatory relief it seeks. The relief from § 91.403(b) addressed in the petition is limited only to the issue of who may perform maintenance and approve the aircraft for return to service following that maintenance. Based on the information provided by the petitioner and the petitioner's compliance with the conditions and limitations of this exemption, relief from the referenced portion of § 91.403(b) would not adversely affect safety.

To ensure a level of safety equivalent to what would be achieved by strict compliance with those regulations, the FAA, will require, as part of this exemption, that maintenance, preventive maintenance, rebuilding, and alterations must be performed by qualified individuals who have been trained in proper techniques and procedures for these UAS, as described in their applicable operating documents. For these UAS, Overwatch proposes that some prescribed maintenance, preventive maintenance and replacement would be

accomplished by Overwatch personnel who have received maintenance training and signoff authority from the manufacturer. Difficult or complex maintenance, preventive maintenance, and alterations may be performed only by the manufacturer. For example, each aircraft must be inspected every 100 hours or once a year, whichever occurs first, and must be performed and an appropriate maintenance log entry made by a designated manufacturer representative. The FAA has determined the operating procedures described in the petition for exemption and the ancillary documents presented to the FAA would enable Overwatch to achieve an equivalent level of safety to that provided by § 91.403 because: (1) the UAS are designed to require minimal maintenance; (2) a comprehensive pre-flight checklist would identify any engine components requiring maintenance; (3) service items would be completed at the intervals specified in the manual, which the FAA has deemed appropriate; and (4) the operator would be trained to conduct minor maintenance, preventive maintenance, and replacements by the manufacturer, and (5) more difficult or complex maintenance, preventive maintenance, or alterations will be performed by the manufacturer. Therefore, relief to § 91.403(b) is granted.

Overwatch requested relief from § 43.11, which prescribes the content, form, and disposition of records for inspections conducted under part 91. Because the HQ-60 and HQ-90 aircraft do not have an airworthiness certificate and § 43.11 does not apply. Therefore, relief to § 43.11 is not necessary.

Overwatch requested relief from § 45.11, *Marking of products.,* The FAA has determined that the requested relief is not necessary because HQ-60 and HQ-90 do not have an airworthiness certificate and will not be certificated under § 21.191.

Overwatch requested relief from § 45.29, *Size of marks*. Overwatch's UA must be identified by serial number, registered in accordance with part 47, and have identification (N-Number) markings in accordance with part 45, Subpart C. Markings must be as large as practicable per § 45.29(f). A review of the petition and the other operating documents indicates the UA will display marks that are approximately three inches high on the tail booms of the UA. Therefore, the FAA has determined Overwatch can comply with the regulation and the requested relief is not necessary.

Overwatch requested relief from §§ 91.405(a), *Maintenance required*, 91.407(a) (1), *Operation after maintenance, preventive maintenance, rebuilding, or alteration*, 91.409(a) (1) and (2) *Inspections*, and 91.417(a) and (b) *Maintenance records*. As explained below, the FAA has analyzed these sections and determined relief is necessary.

Section 91.405(a) prescribes that each operator have their aircraft inspected as prescribed in subpart E of part 91 and must, between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter. And, Section 91.409(a)(1) and (2) states that except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had—

(1) an annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by § 43.7 of this chapter; or (2) an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

According to the documents submitted with the petition for exemption, the maintenance of the HQ-60 and HQ-90 would be heavily dependent on visual interrogation, in the forms of a pre-flight inspection, time-limit checks, and an annual inspection. In the pre-flight inspection, the PIC would ensure that the UA are in an airworthy condition prior to any flight. The PIC would search for and replace failing components immediately prior to the first flight of the day and immediately after becoming aware of a failing component. To comply with the time-limit checks, Overwatch would conduct inspections at prescribed intervals and focus on specific maintenance items, as addressed in the documents submitted with the petition for exemption. For example, the air filter would be changed every 50 hours of flight time. Moreover, each aircraft would be inspected every 100 hours or once a year, whichever occurs first. The inspections would be performed and documented by a designated manufacturer representative. All of the inspections performed in accordance with the documents submitted with the petition for exemption are designed to rectify any detectable flaw in the UA before flight operations begin. Any issues that arise during maintenance that cannot be resolved by routine methods would be forwarded to the manufacturer for further technical support.

The combination of these staggered inspections and maintenance procedures will mitigate the risk associated with the operation and performance of the HQ-60 and HQ-90. Therefore, the FAA has determined compliance with Overwatch's maintenance, inspection and preflight procedures, in accordance with the documents submitted with the petition for exemption and in conjunction with the conditions and limitations of this exemption, will reach a level of safety equivalent to that provided by §§ 91.405(a) and 91.409. Therefore, relief from §§ 91.405(a) and 91.409(a)(1) and (2) is granted.

The petitioner requested relief from § 91.407(a)(1), which states that no person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless—(1) It has been approved for return to service by a person authorized under § 43.7. Since the HQ-60 and HQ-90 do not have an airworthiness certificate and there are no FAA certified repair personnel, meeting the requirement is not possible. The HQ-60 and HQ-90 are simple in design and the risk of incorrect assembly and maintenance is low. To meet the intent of § 91.407(a)(1), the operator has proposed to designate the PIC as the party who would perform regular inspections to identify, and where possible, correct equipment malfunctions. The PIC would also be responsible for conducting repairs and replacements. The PICs would attend equipment training provided by the Original Equipment Manufacturers (OEM), where he or she would have to demonstrate familiarity with the design and functions of the aircraft and its components. The PIC would also ensure that the UAS are in a condition for safe operation prior to any flight and would conduct detailed inspections pursuant to the UAS maintenance manual and the Overwatch operating manual. No flights would occur unless and until the PIC determines that all flight-critical components are airworthy and in a condition

for safe operation. A functional test flight would have to be conducted following the replacement of any flight-critical component(s). A PIC who conducts a functional test flight would have to make an entry of the flight in the aircraft's records. The UAS Flight Operations Manual provides a description of this requirement. Detailed inspection records would be kept at all times by Overwatch. After considering the aforementioned, the FAA finds that adherence to the terms and operating documents submitted as part of the petition for exemption and subject to the conditions and limitations of this exemption, is sufficient to ensure that the proposed operations do not adversely affect safety. Therefore, the FAA grants relief from § 91.407(a)(1).

Overwatch requested relief from § 91.417(a) and (b), which prescribes record retention requirements as they relate to maintenance, preventive maintenance, and alteration and records. An exemption from these regulations is needed because HQ-60 and HQ-90 do not have an airworthiness certificate and thus compliance with these regulatory provisions that apply to aircraft with airworthiness certificates is not feasible. Instead maintenance, inspections, and records handling would be performed in accordance with the manufacturer's manual, any required manufacturer safety or service bulletins, and the conditions and limitations of this exemption. The FAA finds that an equivalent level of safety would be achieved by adherence to the terms and operating documents submitted as part of the petition for exemption and subject to the conditions and limitations below. Therefore, the FAA grants relief from § 91.417(a) and (b).

UAS Pilot in Command (PIC)

The petitioner proposes to use only PICs who hold, at a minimum, a part 61 private pilot certificate and a part 67 third-class medical certificate. The petitioner seeks exemption from § 61.113(a) and (b), which prohibits any person who holds a private pilot certificate from acting as pilot in command of an aircraft for compensation or hire. The purpose of part 61 is to ensure that the skill and competency of any PIC is appropriate for the airspace in which the PIC will be operating, as well as requiring certifications if the pilot is carrying passengers or cargo for hire.

In Exemption No. 11062 issued to Astraeus Aerial (Docket No. FAA-2014-0352), the FAA determined the unique characteristics of UAS operations outside controlled airspace did not warrant the additional cost and restrictions associated with requiring the PIC to have a commercial pilot certificate. The risks associated with the operation of a UAS are lower than those associated with commercial operations contemplated when part 61 was drafted. Overwatch will use private pilots to operate the UA for limited commercial operations. The UA are not carrying passengers or third party payloads, are smaller, lighter and slower than manned assets, and require less experience than a commercial pilot to effectively and safely operate.

While on point, the Astraeus Aerial grant of exemption related to UA that weigh less than 55 lbs. Overwatch is proposing to use UA that are heavier than those in Exemption No. 11062. HQ-60 has a maximum weight of 95 lbs. and HQ-90 has a maximum weight of 121 lbs. The FAA considered whether the weight of the UA should be taken into consideration when determining which aeronautical knowledge requirements of a part 61 pilot certification would apply to the PICs operating UA under this exemption. The FAA determined that the weight should not be a factor when making such a determination because a person with a commercial pilot certificate or a private pilot certificate would have sufficient aeronautical knowledge to operate the HQ-60 and HQ-90 UAS subject to this exemption.

Because operations involve unmanned aircraft, the FAA finds it necessary to also require the PIC to hold a remote pilot certificate issued under 107 and meet the requirements of § 107.65, Aeronautical knowledge recency

Night Operations

Night flying is very different from day flying because human vision at night is not as receptive as it is during the day. Therefore, the FAA has developed processes and procedures to ensure the safety of aircraft operations conducted at night. Pilots operating at night must be trained and tested to ensure they have the basic knowledge required to operate safely at night. In Exemption No. 16341, Industrial Skyworks (USA), Inc., the FAA determined that training for private pilots includes principles of night vision and night visual illusions, which provides training on human night vision limitations and how to adapt to them and potential confusion and concerns of night illusions. Additionally, private pilots are trained to understand the airplane and airport equipment and lighting, which are necessary for basic operation at night. Therefore, holders of a private pilot certificate are permitted to operate aircraft at night.

Though the FAA does not approve UAS training programs such as Overwatch's night training program or its criteria, it does recognize that training mitigates the risks of night operations because it requires the PIC to accumulate nighttime operating skills, knowledge, and experience of UA prior to conducting commercial operations.

To ensure PICs are properly trained, the operator must ensure that the PIC can satisfactorily make evasive and emergency maneuvers and maintain appropriate distances from persons, vessels, vehicles and structures during the day and at night before operating non-training, proficiency, or experience-building flights under this exemption.

In addition, the PIC must be designated before the flight. The PIC cannot transfer his or her designation or responsibilities for the duration of the flight. The PIC is responsible for the safety of all operations conducted by him or her. The PIC is not authorized under this exemption to operate multiple UAS at the same time. The PIC must have a procedure for ensuring the system safety settings (including geofencing, battery settings, and any other

setting that may affect the safety of flight) are correct prior to flight. System safety parameters may be not altered during flight.

Upon consideration of the overall safety case presented by the petitioner, the FAA finds that granting the requested relief from § 61.113(a) and (b), provided the conditions and limitations outlined below, would not adversely affect the safety of the NAS. Therefore, relief from § 61.113(a) and (b) is granted.

Visual Observers

The FAA considered Overwatch's operations and determined that a VO may be necessary for the proposed operations. A VO assists the PIC by serving as a second set of eyes for maintaining VLOS and greater situational awareness. While the PIC may need to look back and forth from a screen to the sky, the VO must maintain a line of sight with the unmanned vehicle at all times thereby ensuring VLOS with the UA at all times for enhanced safety. The goal of the VO is to aid the PIC to avoid any air traffic, people on the ground, or objects during a flight.

The PIC or a VO must be able to determine the aircraft's altitude, attitude and direction of flight at all times and may not fly over people who are not associated with the safe operation of the aircraft. Since eyes need to be on the aircraft at all times, a VO may be needed for the training and operational missions. The COA will address whether a VO is required. Should one be required per the COA, their training and qualifications must include the following.

Visual observers must be able to use human vision unaided by any device other than corrective lenses and are required to have a distance visual acuity of 20/20 or better and normal color vision; normal hearing acuity; and comply with § 91.17, alcohol and drug prohibitions.

The VOs must have practical skills that would assist the PIC with site assessment; positioning him or herself to maximize view of surrounding airspace, checking communications equipment being used and ensure that communications are not impeded under high noise conditions. If operating close to airports, the VO may be required to monitor applicable common traffic advisory frequency, departure, approach, and tower frequencies. Further, VOs must maintain a scanning pattern so complete scanning of an area is accomplished. He or she must also understand the emergency response plan.

Visual observers not only need to be able to identify issues in the airspace, but direct the PIC to take the action necessary to avoid those issues. The VO's role is an integral part of the operation, their interaction with the PIC is critical to safe operations.

While there is no FAA-approved training for VOs, the FAA recognizes the value of training as it prompts the VO to accumulate operating skills, knowledge, and experience of UA prior

to conducting commercial operations. Consequently, training and practice mitigate some operational risk. This grant of exemption requires that VOs to successfully complete a training program on the roles and responsibilities necessary to perform the duties of a VO, which includes training, a written and oral knowledge test and recurrent training.

Prior to nighttime operations, the VO's training must include principles of night vision and night visual illusions, as well as on human night vision limitation; how to adapt to them; and how to appropriately deal with confusion of night illusions. He or she must understand communication protocols. Additionally, VOs must understand the aircraft lighting, which is necessary for basic operation at night.

The FAA notes that VOs are prohibited from operations during medical deficiency as prescribed in § 61.53(b). In addition, VOs are required to have adequate visual abilities in order to be able to see the UA clearly, recognize terrain, obstructions, see and avoid aerial or ground hazards and other aircraft without undue hesitation. Visual observers shall use corrective lenses (eyeglasses or contact lenses) as necessary to maintain normal visual acuity.

UAS Operating Parameters

This grant of exemption allows the petitioner to conduct Training/Test/Integration Flights during the day or at night and within VLOS of the PIC or the VO. Such flights would occur in airspace above certain land belonging to the Bureau of Land Management (BLM) near Nipomo, California, and in airspace above private property outside of Santa Ynez, California. These airspaces were selected for: 1. Low air traffic volume 2. Visual line of sight properties 3. Proximity to terrain, and 4. Terrain characteristics that help funnel traffic for easier observation. The training operations would be conducted in accordance with certificates of waiver or authorization (COA) issued by the FAA. The petitioner would apply for COAs via the COA Online Application System (CAPS) application and receive approval before flying in the NAS.

The FAA notes that Overwatch currently flies in two restricted areas. Operations within the restricted areas must be in accordance with the purpose for which it was designated. To conduct these operations, no regulatory relief is needed. All such operations are handled in accordance with the controlling agency's procedures. Therefore, operations in restricted areas are not part of this grant.

The petitioner proposes to conduct operational missions (i.e. missions other than training/test/integration flights) in a temporarily restricted airspace (TFR) per 14 CFR § 91.137(a)(1) and (b), whereby Overwatch would operate the UAS in a pre-coordinated section of the TFR and well clear of any manned traffic within and BVLOS, and whereby the petitioner proposes to seek a COA amendment through the Special Governmental Interest (SGI) process prior to conducting such operations. This grant does not authorize BVLOS operations, COAs or SGI amendments. The petitioner will need to:

1. Apply for a waiver under § 91.113, Well Clear. To initiate the process, send a request for a waiver to § 91.113 to 9-UAS-91.113Waivers@faa.gov
2. Apply for a UAS COA via https://caps.faa.gov/ which provides applicants with an electronic method of requesting a COA. Applicants will need to obtain an account in order to access the online system.
3. Apply for a waiver through the SGI process by filling out the Emergency Operation Request Form and send it to the FAA's System Operations Support Center (SOSC) at 9-ator-hq-sosc@faa.gov.

The petitioner also proposes to conduct Operational Missions in the NAS. This grant permits such operational missions (i.e. missions other than training/test/integration flights) where the petitioner may operate within VLOS of the PIC or the VO. In such circumstances, the petitioner would operate under a blanket COA enclosed in this exemption.

The petitioner will operate at all times in accordance with the NWCG Interagency Airspace Coordination Guide and NWCG's Standards for UA Systems Operations. Operating in compliance with these established procedures will help ensure safe and effective operations.

Specific Provisions:

The petitioner requested relief from § 91.9(b)(2) and (c), *Civil aircraft flight manual, marking, and placard requirements*, and § 91.203(a) and (b): *Civil aircraft: Certifications required.* Section 91.9(b)(2) prohibits a person from operating a civil aircraft unless there is available in the aircraft a current *approved* airplane or rotorcraft flight manual, *approved* manual material, markings, and placards, or any combination thereof. Section 91.9(c) prohibits a person from operating a civil aircraft unless it is identified in accordance with part 45. Similarly, § 91.203(a) prohibits, in pertinent part, any person from operating a civil aircraft unless it has within it (1) an appropriate and current airworthiness certificate; and (2) an effective U.S. registration certificate issues to its owner or, for operation within the United States, the second copy of the Aircraft Registration Application as provided for in § 47.31(c). Section 91.203(b) prescribes, in pertinent part, that no person may operate a civil aircraft unless the airworthiness certificate or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew. The original intent of these regulations was to display an aircraft's airworthiness, certification, and registration documents so they would be easily available to inspectors and passengers. The FAA has previously determined that relief from §§ 91.9(b)(2) and (c) and 91.203(a) and (b) is not necessary. See Exemption No. 11062 at pages 19-20. Nevertheless, Overwatch has stated it would maintain all documentation, including maintenance and safety information as described in § 91.9(b)(2) and (c), in the GCS. All such information is readily available to the PIC and potential inspectors. Placards would be clearly visible to the PIC.

The petitioner seeks exemption from § 91.103(b)(2). Section 91.103(b) requires the PIC to become familiar with runway lengths at airports of intended use, takeoff and landing distance

information for aircraft that may operate only in accordance with an approved Airplane or Rotorcraft Flight Manual, as well as other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature. Operations of the HQ-60 and HQ-90 do not require an approved Airplane or Rotorcraft Flight Manual. Further, both HQ-60 and HQ-90 have a vertical take-off and landing system, and as such, will not operate from standard runways. Nevertheless, the PIC must become familiar with all available information concerning each flight he or she conducts under this exemption. In addition, the petitioner may only launch the UA from an isolated area near the incident command post with enough open space to allow for safe launch and recovery operations. Only flight operations personnel will be authorized in the GCS or near the launch/recovery location during critical phases of flight. Numerous Section 333 exemptions have been granted for this request. As in those cases, the FAA finds that these mitigations are sufficient to ensure the same level of safety the regulations were intended to uphold, therefore, relief from § 91.103(b)(2) is granted with respect to the PIC having to become familiar with all available information related to runway lengths at airports of intended use (e.g., airport elevations and runway slope). Notwithstanding, the petitioner must continue to comply with all other requirements in § 91.103(b)(2), meaning that PIC shall, before beginning a flight, become familiar with all available information concerning that flight including reliable information appropriate to the aircraft, aircraft performance, aircraft gross weight, and wind and temperature.

The petitioner requested relief from § 91.105, Flightcrew members at stations. Section 91.105 only applies to flightcrew members, as defined at § 1.1. Because the PIC and other personnel involved in operations of the HQ-60 and HQ-90 are incapable of, and therefore cannot be inside the UA, the requirements of § 91.105 do not apply to them. Therefore, relief from § 91.105 is not necessary. Nevertheless, flightcrew members will be required to be present and remain at their duty stations at the GCS throughout the entirety of the flight activities.

The petitioner requested relief from § 91.109, Flight instruction. Section 91.109(a) requires aircraft used for "flight instruction" to have "fully functioning dual controls." Section 91.109(b) relates to airplanes equipped with a single, functioning throw over control wheel that controls the elevator and ailerons, in place of fixed, dual controls. Section 91.109(c) lists the conditions under which a person may operate in civil aircraft in a simulated instrument flight. Section 91.109(d) describes who may act as a flight instructor in a civil aircraft that is being used for a flight test for an airline transport pilot certificate or a class or type rating on that certificate, or for a part 121 proficiency flight test. The petitioner did not describe flight instruction scenarios in which a dual set of controls or a functioning throw over control wheel would be used or required. Instead, the petitioner indicates the UA flight instruction would occur at a GCS. There are no redundant controls, simply redundant command links and servers. Training would be conducted on the autopilot simulator prior to any flight and with an instructor "over the shoulder" in the GCS. Should an issue arise, the instructor could easily assume control of the aircraft. The UA autopilot software has integrated safety features including lost link profiles and return-to-base divert options. The

training that would occur in accordance with this exemption would be conducted only pursuant to the procedures described in the operating documents, during dedicated training sessions. As described in prior exemptions, therefore, relief from § 91.109 is granted to the extent necessary to comply with the petitioner's operating documents and the applicable conditions and limitations stated below. See Exemption No. 17790 at page 10.

The petitioner requested relief from § 91.151(a), which prohibits commencement of a flight in an airplane under visual flight rules (VFR) conditions unless the aircraft has sufficient fuel to fly to the first point of intended landing, and after that for at least 30 minutes during daytime operations. The HQ-60 and HQ-90 are vertical take-off and landing systems and use electric brushless motors (not gas-powered engines) for launch and recovery. Per the documents submitted as part of this petition for exemption, the petitioner would ensure that the UA always maintain enough electrical charge in the system for two missed approaches. The UA mission would also be planned with a power reserve of 30 minutes at normal cruising speed during the day, and 45 minutes at night. Fuel states and battery charge percentages would be monitored in real time throughout the flight by the PIC in the GCS. Based on these risk mitigations, the FAA determined the proposed operations would not adversely affect safety. Therefore, relief to § 91.151(a) is granted to the extent that the UAS is not powered by fuel and as long as the UAS is operated in accordance with the conditions and limitations in this exemption.

The FAA is denying the requested relief from 14 CFR § 91.215's ATC transponder and altitude reporting equipment and use requirements because it is unnecessary given the relief already provided in the regulation itself.[3] Section 91.215(d) provides that the ATC facility having jurisdiction over the concerned airspace may authorize deviations from the requirements when operators request the deviation within prescribed time periods. Thus, the ATC facility may assess whether the specific circumstances at the time of the requested deviation permit for safely deviating from the § 91.215 requirements. Given the information submitted by petitioner, the FAA finds the requested relief is not appropriate or necessary as the operator may already seek relief by requesting a deviation pursuant to the regulations.

Public Interest

The FAA agrees with the petitioner's rationale and finds that a grant of exemption is in the public interest. The contemplated operations involve precision aerial surveys of fire scenes, natural disasters and search and rescue sites using the Trillium Engineering Orion HD50 and HD80 Electro-optical (EO)/LWIR sensor to collect high quality, actionable data for use by first responders, firefighters and search and rescue personnel. This technology, combined with Overwatch's UAS and operation, represents a vast improvement to the accuracy of

information available today for manned aviation. It will help firefighters and first responders better pinpoint where to put resources. This will result in using fewer firefighters.

The enhanced safety and reduced environmental impact achieved using a UA with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest. The exemption promotes safe progression of UAS integration into the NAS. The enabling effect of this exemption provides good cause to find that the UAS operation conducted under this exemption is in the public interest.

Summary

The following table summarizes the FAA's determinations regarding the relief sought by Overwatch for its operations and granted by the FAA:

Relief considered (14 CFR)	FAA determination (14 CFR)
21(h)	Relief not necessary
43.7	Relief not necessary
43.11	Relief not necessary
45.11	Relief not necessary
45.29	Relief not necessary
61.113(a) and (b)	Relief granted with conditions and limitations
91.7(a)	Relief granted
91.9(b)(2) and (c)	Relief not necessary
91.103(b)(2)	Relief granted with conditions and limitations
91.105	Relief not necessary
91.109	Relief granted with conditions and limitations
91.113(b)	Addressed in the COA
91.151(a)	Relief granted with conditions and limitations
91.203(a) and (b)	Relief not necessary
91.215	Relief not necessary
91.403(b)	Relief granted with conditions and limitations
91.405(a)	Relief granted with conditions and limitations
91.407(a)(1)	Relief granted with conditions and limitations
91.409(a)(1) and (2)	Relief granted with conditions and limitations
91.417(a) and (b)	Relief granted with conditions and limitations

The FAA's Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, 44701, and 44807, delegated to me by the Administrator, Overwatch Aero, LLC is granted an exemption from

14 CFR 61.113(a) and (b); 91.7(a); 91.103(b)(2); 91.109; 91.151(a); 91.403(b); 91.405(a); 91.407(a)(1); 91.409(a)(1) and (2); and 91.417(a) and (b) to the extent necessary to allow Overwatch to conduct training over BLM land and certain private property, and to conduct operations for search and rescue and fire mapping activities in support of first responders, subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption**,** Overwatch Aero, LLC is hereinafter referred to "Overwatch" or as the operator. Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this grant of exemption.

1. Operations authorized by this exemption are limited to the HQ-60 and HQ-90 by the petitioner and are limited to the operations described in the petition for exemption and the operating documents. The aircraft's maximum take-off weight must not exceed 95 and 121 lbs., respectively. Proposed operations of any other unmanned aircraft system (UAS) requires a new petition or a petition to amend this decision.

2. The operator must petition for an amendment to this decision if the operator makes any update or revision to the operating documents, training program, aircraft systems, operating parameters, or other supporting documents that would affect the basis upon which the FAA granted this exemption. The documents on which the FAA relied for granting this petition for exemption are listed above, within the section titled, "Petitioner supports its request with the following information." The petitioner must track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The petitioner must submit such updates by contacting the FAA's Flight Standards Service, General Aviation and Commercial Division (AFS-800), 55 M Street, SE, 8th Floor, Zone 1, Washington, DC 20003. Telephone number: 202-267-1100, Email: 9-AFS-800-Correspondence@faa.gov.

3. Operations under this exemption are limited to visual line of sight (VLOS) operations and an altitude prescribed by the Certificate of Waiver or Authorization (COA).

4. The unmanned aircraft (UA) may not be operated at speeds greater than the maximum UA operating speed recommended by the aircraft manufacturer, which is 65 knots groundspeed. The exemption holder must use groundspeed to determine compliance with the speed restrictions. The PIC is expected to factor in response time in the event of an emergency when designing the flight paths.

5. For the purpose of compliance with all conditions and limitations in this exemption, the term "flightcrew member" includes the PIC, one or more visual observer(s) (VO), and any other personnel required for the safety of the flight operation.

6. This exemption does not excuse Overwatch from complying with 14 CFR part 375. If operations under this exemption involve the use of foreign civil aircraft, the operator must obtain a Foreign Aircraft Permit pursuant to § 375.41 before conducting any operations under this exemption. Application instructions are specified in § 375.43.

7. The PIC or a VO must be able to determine the aircraft's altitude, attitude and direction of flight at all times. The unmanned vehicle may not fly over people who are not associated with the safe operation of the aircraft.

8. *PIC certification*. Under this exemption, a PIC must hold at least a private pilot certificate issued under part 61, and hold a remote PIC certificate issued under part 107 and meet the aeronautical recency requirements of § 107.65.. The PIC must also hold a current FAA third-class airman medical certificate. The PIC must be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate.

9. The PIC must present his or her pilot certificate and identification in response to a request from: the Administrator; an authorized representative of the National Transportation Safety Board (NTSB); any Federal, State, or local law enforcement officer; and any authorized representative of the Transportation Safety Administration (TSA).

10. PIC qualifications. The PIC must be qualified in accordance with the operator and manufacturer's training programs and manuals to operate the HQ-60 and HQ-90 UAS safely. The PIC must remain current and qualified before conducting operations under this exemption.

11. The operator must ensure that the PIC can satisfactorily make evasive and emergency maneuvers and maintain appropriate distances from persons, vessels, vehicles and structures before operating non-training, proficiency, or experience-building flights under this exemption.

12. The PIC must be designated before the flight. The PIC cannot transfer his or her designation or responsibilities for the duration of the flight. The PIC is responsible for the safety of all operations conducted by him or her.

13. All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the enclosed COA. If a conflict exists between the COA and this condition, the most restrictive provision will apply. In the absence of any express altitude restriction in a COA or any other document the FAA provides that applies to operations under this exemption, the maximum altitude is 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

14. When a VO is required by COA, he or she must hold a part 107 pilot certificate. Visual observers must successfully complete a training program on the roles and responsibilities to be performed by VOs, which includes training, a written and oral knowledge test and recurrent training. In addition to the petitioner's training program, the VO must be familiar with the FAA's Small Unmanned Aircraft Systems Rules (14 CFR part 107) regarding flights over people and other prohibited activities, as well as the General Operating Rules (part 91).

15. Prior to nighttime operations, the VO's training must include principles of night vision and night visual illusions, as well as on human night vision limitation; how to adapt to them; and how to appropriately deal with confusion of night illusions. He or she must understand communication protocols. Additionally, VOs must understand the aircraft lighting, which is necessary for basic operation at night.

16. The PIC must ensure that the VO can perform the duties required of the VO. At a minimum, the VO must be able to use human vision unaided by any device other than corrective lenses and is required to have a distance visual acuity of 20/20 or better and normal color vision; normal hearing acuity; and comply with § 91.17, alcohol and drug prohibitions. The VO must comply with comply with § 61.53, Prohibition on operations during medical deficiency. Effective communication among the flight crew must be maintained at all times during the operation. Electronic messaging or texting is not permitted during flight operations. All flightcrew members, including PIC and VO(s) must maintain two-way voice communications with each other during operations. If unable to maintain two-way voice communication, the PIC will land the UA in a safe location as soon as he or she determines it is practicable to do so. If communication occurs by electronic device:
    a. The device must be continuous full-duplex,
    b. The PIC must be able to use the device hands-free, and
    c. There must be a reliable back-up communication method.

17. Operations conducted under this exemption must comply with all of the following:

a. The UAS must use lighted anti-collision lighting visible for at least 3 statute miles.
b. The PIC may reduce the intensity of, but may not extinguish, the anti-collision lighting if he or she determines that, because of operating conditions, it would be in the interest of safety to do so.
c. The UAS must be painted in a high visibility paint scheme.

18. Prior to each flight, the PIC must conduct a pre-flight inspection, become familiar with all information concerning that flight, pursuant to § 91.103, and determine the UAS is in a condition for safe operation. The pre-flight inspection must account for all potential discrepancies (e.g., inoperable components, items, or equipment). The UAS may not be operated if the inspection reveals a condition that affects the safe operation of the UAS and this prohibition will be in effect until the condition is resolved and the PIC determines the UAS is in a condition for safe flight.

19. The PIC is prohibited from beginning a flight unless, considering wind and forecast weather conditions, there is enough available power/fuel for the UA to conduct the intended operation with sufficient reserves such that the PIC can land the UA without posing an undue risk to aircraft or people or property on the ground.

20. Throughout the operation of a UAS under this exemption, no required crewmember may engage in electronic messaging, texting, or other communication using any personal electronic device which could distract a flightcrew member from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties.

21. A UAS operated under this exemption must be controlled by a single control station and one PIC at a time. A PIC is not authorized under this exemption to operate multiple UAS at the same time.

22. The operator must have a procedure for ensuring the system safety settings (including geofencing, battery settings, and any other setting that may affect the safety of flight) are correct prior to flight. System safety parameters may be not altered during flight.

23. A functional test flight must occur following any maintenance or alterations that affect the operation or flight characteristics of the HQ-60 or HQ-90 aircraft operating under this exemption and prior to conducting further operations under this exemption. Functional test flights must be conducted within VLOS by a PIC with the assistance of a VO as defined above, and other personnel required to conduct the functional flight test (such as a mechanic or technician) and must

remain at least 500 feet from all other people. The functional test flight must be conducted in a manner that does not pose an undue hazard to persons or property. Overwatch must permit the Administrator to observe functional test flights upon the request.

24. Operations under this exemption may not be conducted from any moving land or water-borne vehicle or moving aircraft.

25. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

26. The UA must remain clear and give way to all manned aviation operations and activities at all times.

27. Frequency spectrum approval is independent of the FAA's review. The operator must obtain certification and frequency assignments (licenses) from the Federal Communications Commission (FCC) equipment authorization (47 CFR part 2, Subpart J and 47 CFR part 87, Subpart D) and FCC frequency licenses (47 CFR part 87), as applicable. FCC approvals for the control link, Air Traffic Control (ATC) radios, transponders, detect and avoid systems (including ADS-B), and navigation systems used to support the UAS operations must be in place prior to operating the UAS in the National Airspace (NAS). Equipment authorized and licensed under other parts of the FCC rules will be considered on a case-by-case basis by the FCC.

28. The PIC may not begin or continue a flight in the event of any global positioning system (GPS) outage, signal fault, integrity issue, or any other condition affects the functionality or validity of the GPS signal.

29. The PIC must abort the flight operation if circumstances or emergencies arise that could degrade the safety of persons or property. The termination of flight operations by the PIC must not cause undue hazard to persons or property.

30. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

31. During all operations conducted under this exemption, the distance between the ground control station (GCS) and the HQ-60 and HQ-90 must not exceed the

radio line of sight[4] through the entirety of the proposed flight path. Operations using multiple GCS and/or command and control link relays along the flight path for handoff between GCS are prohibited.

32. The PIC is responsible for designing the flights so that hazards to people on the surface, including first responders, are minimized.

33. All training, testing, and integration operations under this exemption must be conducted in the airspace above the Bureau of Land Management (BLM) land near Nipomo, California, as described in the operating documents and over certain private property outside of Santa Ynez, California, as described in the operating documents.

34. The PIC must obtain and use real-time weather information as described in the operating documents.

35. All training, testing, and integration operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

36. Operations under this exemption may only be conducted if weather reports for the area of the operation are available, if the forecast ceiling is at least 1,000 feet above the proposed operation, and if there will be a minimum visibility of 3 statute miles 1 hour before takeoff and 1 hour after landing.

37. The PIC must land the HQ-60 and HQ-90 as soon as practicable if the PIC is unable to comply with the required ceiling and visibility requirements.

38. Flights for the purpose of training the operator's PIC's and VO's (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. Training operations may only be conducted during dedicated training sessions.

39. All training, testing, and integration flight operations must be conducted at least 500 feet from all persons who are not directly participating in the operation, and from vessels, vehicles, and structures, unless when operating:

[4] Line of sight is a type of propagation that can transmit and receive data only where transmit and receive stations are in view of each other without any sort of an obstacle between them. FM radio, microwave and satellite transmission are examples of line of sight communication.

a. *Over or near people directly participating in the operation*. People directly participating in the operation of the HQ-60 and HQ-90 include the PIC, crewmembers, and other consenting personnel whose presence is necessary to ensure the safety of the operation.
b. *Near nonparticipating persons*. The HQ-60 and HQ-90 may only be operated closer than 500 feet from a person who is not directly participating in the operation when barriers or structures are present. Such barriers must sufficiently protect the person from the aircraft and from debris or hazardous materials that might be, or are, released from the aircraft. Under these conditions, Overwatch must ensure the person remains under such barriers or structures for the duration of the operation. If a situation arises in which the person leaves such barriers or structures and is within 500 feet of the HQ-60 or HQ-90, the flight operations must cease immediately in a manner that does not cause undue hazard to any person.
c. *Near vessels, vehicles and structures*. Prior to conducting operations within 500 feet of any vessel, vehicle, or structure, Overwatch must obtain permission from a person with authority over such vessels, vehicles or structures to approach it within 500 feet. The PIC must first assess the risk of operating closer to those objects and determine that it does not present an undue hazard.

40. Unless otherwise specified in this exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

41. To extend this exemption, Overwatch must submit the request by using the Regulatory Docket FAA-2018-0857 (http: //www.regulations.gov). In addition, Overwatch should submit the request no later than 120 days prior to the exemption's expiration date listed below.

42. To request an amendment to this exemption, Overwatch should submit a request no later than 120 days prior to the date Overwatch needs the amendment and should use the process indicated above.

43. Any extension or amendment of this exemption must meet the requirements of § 11.81.

44. The operator must follow the Original Equipment Manufacturers (OEM) operating limitations, maintenance, service bulletins, overhaul, replacement, inspection, and life limit requirements for the HQ-60 and HQ-90 and its components. Each UAS operated under this exemption must comply with all OEM safety bulletins.

45. The Overwatch Aero Flight Operations Manual, Aircraft Maintenance Manual/Service Manual, Federal Communications Commission (FCC) Grant of Equipment Authorization, and a copy of this exemption must be accessible to the PIC at the control station throughout all operations conducted under this exemption, and must be made available to the Administrator upon request. If a discrepancy exists between the terms, conditions, and limitations in this exemption and the procedures outlined in the aforementioned documents, the terms, conditions, and limitations included herein take precedence and must be followed. Otherwise, Overwatch must follow the procedures as outlined in the operating documents. Overwatch may update or revise its operating documents. Overwatch must track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. If Overwatch determines that any update or revision would affect the basis upon which the FAA granted this exemption, then Overwatch must petition to amend this exemption. In this regard, this document describes all such basis. Overwatch must also present updated and revised documents if it petitions to extend or amend this exemption. Overwatch must submit such updates by contacting the FAA's Flight Standards Service, General Aviation and Commercial Division (AFS-800).

The Effect of the FAA's Decision

This exemption terminates on August 31, 2022, unless sooner superseded or rescinded.

Issued in Washington, D.C., on (Date in signature box)

/s/

Robert C. Carty
Deputy Executive Director, Flight Standards Service

Enclosure

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO
Any Operator with a valid 49 USC 44807 Grant of Exemption

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED
Operation of Unmanned Aircraft System(s) (UAS) in accordance with the operators' 49 USC 44807 Grant of Exemption in Class G airspace at or below 400 feet Above Ground Level (AGL) in the National Airspace System (NAS).

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE
N/A

STANDARD PROVISIONS

1. A copy of the application, made for this certificate shall be attached and become a part thereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

Note: This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

Special Provisions Nos. A to G, inclusive, are set forth on the attached pages.

This Certificate of Waiver or Authorization (COA) is valid for two years from the issuance of a 49 USC 44807 Grant of Exemption and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

/S/

FAA Headquarters
(Region)

Joseph Maibach
(Signature)

Acting Manager, UAS Policy Team, AJV-P22
(Title)

FAA Form 7711-1 (7-74)

SPECIAL PROVISIONS

A. General.

1. Unmanned aircraft have no on-board pilot to perform see-and-avoid responsibilities; therefore, when operating outside of active restricted and warning areas approved for aviation activities, provisions must be made to ensure an equivalent level of safety exists for unmanned operations consistent with 14 CFR Part 91 §91.111, §91.113 and §91.115.
2. The approval of this COA is effective only with an approved 49 USC 44807 Grant of Exemption.
3. This authorization may be canceled at any time by the Administrator, the person authorized to grant the authorization, or the representative designated to monitor a specific operation. As a general rule, this authorization may be canceled when it is no longer required, there is an abuse of its provisions, or when unforeseen safety factors develop. Failure to comply with the authorization is cause for cancellation. The operator will receive written notice of cancellation.

B. Safety of Flight.

1. The operator or pilot in command (PIC) is responsible for halting or canceling activity in the COA area if, at any time, the safety of persons or property on the surface or in the air is in jeopardy, or if there is a failure to comply with the terms or conditions of this authorization.

2. The PIC is responsible:

   a. To remain clear and give way to all manned aviation operations and activities at all times,

   b. For the safety of persons or property on the surface with respect to the UAS, and

   c. For compliance with CFR Parts 91.111, 91.113 and 91.115.

3. UAS pilots must ensure there is a safe operating distance between aviation activities and Unmanned Aircraft (UA) at all times.

4. Visual observer (s) must be used at all times and maintain instantaneous communication with the PIC.

5. The PIC is responsible to ensure visual observer(s) are:

   a. Able to see the UA and the surrounding airspace throughout the entire flight, and

   b. Able to sufficiently provide the PIC with the UA's flight path, and proximity to all aviation activities and other hazards (e.g., terrain, weather, structures) to enable the PIC to exercise effective control of the UA to prevent the UA from creating a collision hazard.

6. Visual observer(s) must be able to communicate clearly to the PIC any instructions required to remain clear of conflicting traffic.

7. The operator or delegated representative must not operate in Prohibited Areas, Special Flight Rule Areas or, the Washington National Capital Region Flight Restricted Zone. Operations in the Washington DC Special Flight Rule Area may be conducted in accordance with FDC NOTAM 6/1117. Such areas are depicted on charts available at http://www.faa.gov/air_traffic/flight_info/aeronav/. Additionally, aircraft operators should abide by Notices to Airmen (NOTAMS) that restrict operations in proximity to power plants, electric substations, dams, wind farms, oil refineries, industrial complexes, national parks, the Disney resorts, stadiums, emergency services, the Washington DC Metro Flight Restricted Zone (FRZ), military or other federal facilities.

C. Reporting Requirements.

1. Documentation of all operations associated with UAS activities is required, regardless of the airspace within which the UAS operates. **NOTE:** Negative (zero flights) reports are required.

2. The proponent must submit the following information to 9-AJV-115-UASOrganization@faa.gov on a monthly basis:

   a. Name of operator, Exemption number, and aircraft registration number

   b. UAS type and model

   c. All operating locations to include location city/name and latitude/longitude

   d. Number of flights (per location, per aircraft)

   e. Total aircraft operational hours

   f. Takeoff or Landing damage

   g. Equipment malfunctions. Reportable malfunctions include, but are not limited to the following:

      (1) On-board flight control system

      (2) Navigation system

      (3) Power plant failure in flight

      (4) Fuel system failure

      (5) Electrical system failure

      (6) Control station failure

   h. The number and duration of lost link events (control, performance and health monitoring, or communications) per aircraft per flight.

D. Notice to Airmen (NOTAM).

A distant (D) NOTAM must be issued when unmanned aircraft operations are being conducted.

This requirement may be accomplished:

1. Through the operator's local base operations or NOTAM issuing authority, or

2. By contacting the NOTAM Flight Service Station at 1-877-4-US-NTMS (1-877-487- 6867) not more than 72 hours in advance, but not less than 24 hours prior to the operation, unless otherwise authorized as a special provision. The issuing agency will require the:
   a. Name and address of the pilot filing the NOTAM request.
   b. Location, altitude, and/or operating area.
   c. Time and nature of the activity.
   d. Number of UAS flying in the operating area.

3. The area of operation defined in the NOTAM must only be for the actual area to be flown for each day and defined by a point and the minimum radius required to conduct the operation.

4. The operator must cancel applicable NOTAMs when UAS operations are complete or will not be conducted.

E. Coordination Requirements.

1. Operators and UAS equipment must meet the requirements (communication, equipment, and clearance) of the class of airspace within which the UAs will operate.

2. Operator filing and the issuance of required distance (D) NOTAM will serve as advance ATC facility notification for UAS operations in an area.

3. Coordination and de-confliction between Military Training Routes (MTRs) is the operator's responsibility. When identifying an operational area the operator must evaluate whether an MTR will be affected. In the event the UAS operational area overlaps an MTR, the operator will contact the scheduling agency 24 hours in advance to coordinate and de-conflict. If unable to determine the MTR point of contact, contact the FAA at email address mail to: 9-AJV-115-UASOrganization@faa.gov with the IR/VR routes affected and the FAA will provide the scheduling agency information. If prior coordination and de-confliction does not take place 24 hours in advance, the operator must remain clear of all MTRs. Scheduling agencies for SUAs are listed in the FAA JO 7400.8.

F. Flight Planning Requirements.

1. Operations must be under Visual Meteorological Conditions (VMC) and meet the following conditions and limitations:
   a. At or below 400 feet AGL, and
   b. Beyond the following distances from the airport reference point (ARP) of a public use airport, heliport, gliderport, or seaport listed in the Digital - Chart Supplement (d-CS), Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications:
      (1) 5 nautical miles (NM) from an airport having an operational control tower; or
      (2) 3 NM from an airport having a published instrument flight procedure, but not having an operational control tower; or

(3) 2 NM from an airport not having a published instrument flight procedure or an operational control tower; or

(4) 2 NM from a heliport.

2. For all UAS requests not covered by the conditions listed above, the exemption holder may apply for a new Air Traffic Organization (ATO) COA at https://caps.faa.gov/coaportal.

G. Emergency/Contingency Procedures.

1. Lost Link/Lost Communications Procedures: If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property and land.
2. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries defined in this COA must be reported to the FAA via email at: 9-AJV-115-UASOrganization@faa.gov within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

AUTHORIZATION

This COA does not, in itself, waive any Title 14 Code of Federal Regulations, nor any state law or local ordinance. Should the proposed operation conflict with any state law or local ordinance, or require permission of local authorities or property owners, it is the responsibility of the operator to resolve the matter. This COA does not authorize flight within Special Use airspace without coordinating and de-conflicting with the scheduling agency. The operator is hereby authorized to operate the Unmanned Aircraft System in the National Airspace System.